



Supply Chain Continuity

'Using Process Improvement & Scenario Planning To Reduce Uncertainty'

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With the Geopolitical instability of today's world, businesses, including the energy sector, are beginning to think more about the continuous flow of goods and services.

While potential war with Iraq has heightened this awareness, it is worth examining all of the event types that disrupt the supply chain. Interestingly, these types of events, normally viewed as random, happen with an alarming frequency.

During the discussion, we will examine several events and their impact, and present several supply chain capabilities that can help companies better manage the continuity of their supply chains.

The 'Great Flood' of 1993...

1993 FLOOD DAMAGES COMPILATIONS BY STATE

20 DEC 1994

Dollar Damages for States

State \ Damage Category	Residential	Comm/Ind	Public	Transportation
Illinois	\$176,832,794	\$70,456,513	\$90,961,703	\$58,235,120
Iowa	\$57,826,854	\$34,325,838	\$31,934,642	\$12,246,429
Kansas	\$35,829,067	\$54,060,900	\$14,449,221	\$29,347,114
Minnesota	\$16,939,896	\$7,882,420	\$7,122,167	\$3,353,907
Missouri	\$405,175,161	\$546,476,007	\$114,929,214	\$300,483,647
Nebraska	\$18,583,995	\$13,644,498	\$17,368,911	\$18,000,624
North Dakota	\$10,137,811	\$4,547,604	\$4,194,538	\$0
South Dakota	\$21,919,482	\$0	\$7,005,020	\$0
Wisconsin	\$17,647,001			
Total - All States	\$760,892,061			

\$ 12b-\$16b in Losses

State \ Damage Category	Utilities	Agricultural	Emergency	Other	Total for State
Illinois	\$39,082,764	\$166,501,898	\$52,960,141	\$97,320,519	\$752,351,452
Iowa	\$6,596,518	\$1,030,029,938	\$56,186,982	\$193,546,795	\$1,422,693,996
Kansas	\$17,096,425	\$855,849,448	\$7,800,290	\$53,409,104	\$1,067,841,569
Minnesota	\$4,031,949	\$694,041,346	\$9,745,160	\$254,465,434	\$997,582,279
Missouri	\$57,816,335	\$540,666,103	\$80,022,992	\$155,463,996	\$2,201,033,455
Nebraska	\$9,066,016	\$120,521,073	\$2,461,601	\$7,358,715	\$207,005,433
North Dakota	\$0	\$35,038,604	\$5,865,938	\$11,198,520	\$70,983,015
South Dakota	\$0	\$276,217,794	\$6,834,686	\$170,997,463	\$493,545,229
Wisconsin	\$1,577,804	\$133,835,068	\$5,527,044	\$103,232,193	\$287,499,684
Total - All States	\$135,267,811	\$3,852,701,272	\$227,404,834	\$1,046,992,739	\$7,500,536,112

But 1993 was not an isolated event...

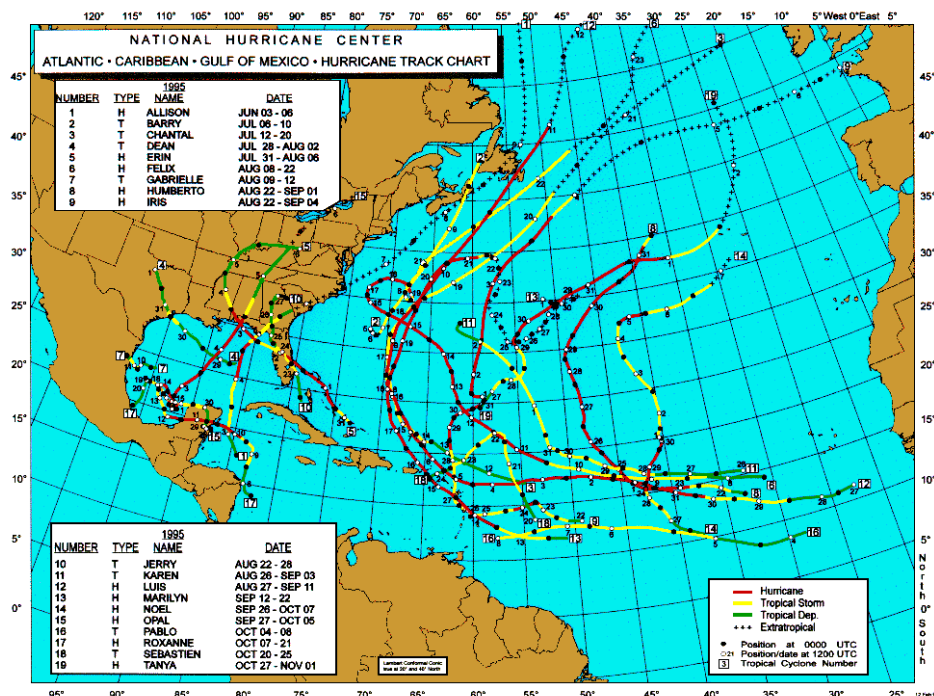
- Serious Mississippi River Basin flooding occurs with alarming regularity causing business loss, utilities outages and damage, transportation disruption, residential loss, and loss of life
 - 1951
 - 1952
 - 1984
 - 1986
 - 1993
 - 1995
 - 1997



Hurricanes...they come year-in and year-out...



"We're looking at up to a five-times increase in damage costs from hurricanes. Over the last 30 years we've been fortunate, with annual costs to the continental U.S. at about \$500 million. That's likely to increase to about \$2.5 billion."
Chris Landsea, NOAA



- 1999 Floyd \$4.6b
- 1996 Fran \$3.6b
- 1995 Opal \$3.5b
- 1995 Marilyn \$1.7b
- 1992 Andrew \$34.3b
- 1992 Iniki \$2.3b
- 1991 Bob \$2.0b

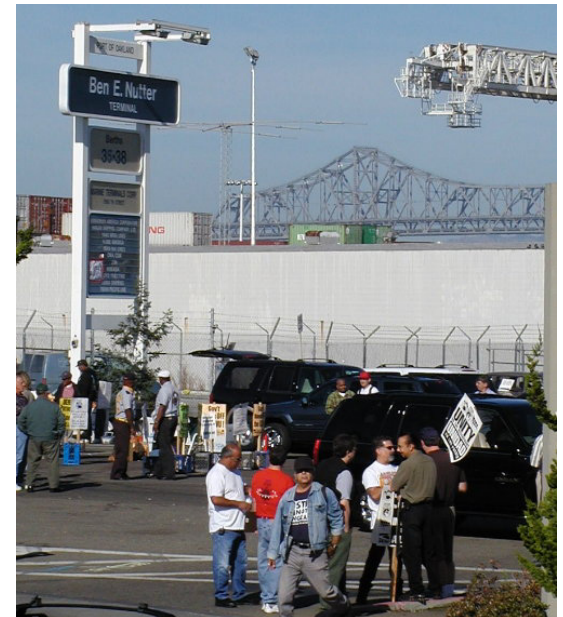
1990/1991 – Desert Shield / Desert Storm...



2002 West Coast Dock Workers Lockout...

West Coast Dock Strike Costing \$1 Billion A Day

Each and every one of them is closed along the West Coast. All twenty-nine major seaports from Seattle to San Diego are closed as longshoremen and dock workers are locked out from their jobs due to labor disputes between their union and the Pacific Maritime Association and shippers which control the ports. Hundreds of millions of dollars are being lost per day, as the annual revenue from West Coast shipping is three hundred billion dollars a year or roughly seven percent of US Gross Domestic Product.



1997 Union Pacific Western Rail Service Crisis...



\$100mm/month



Rail Logjam Leaves Farmers, Christmas Retailers Stranded

Sam Walker, Staff writer of The Christian Science Monitor

CHICAGO -- At the end of another landmark year in the history of world capitalism, the American economy is faced with a crisis that sounds eerily Soviet. Department-store inventories are dwindling just as the biggest shopping season of the year begins. Piles of freshly harvested grain have been left to rot on the ground in Nebraska. Petrochemical producers in Texas are shutting down plants. In each case, the culprit isn't a lack of demand, but a massive traffic jam on America's railway system.

9/11/2001...



We All Know The Effects Of 9/11...

And finally, the near future will likely result in Business & Supply Chain disruptions...



War 'would mean biggest oil shock ever'

Faisal Islam, economics correspondent
Sunday February 2, 2003

The Observer The world will suffer a bigger oil crisis than that during the Arab-Israeli conflict of 1973 if the US declares war on Iraq, according to leading US investment bank Goldman Sachs

ADVERTISEMENT

N Korea nuclear crisis: World reaction

There has been strong international condemnation of North Korea's announcement that it is to withdraw immediately from the Nuclear Non-Proliferation Treaty, which seeks to control the spread of nuclear technology.



So much for the history lesson...

**Did your organization react to the
events we have discussed...**

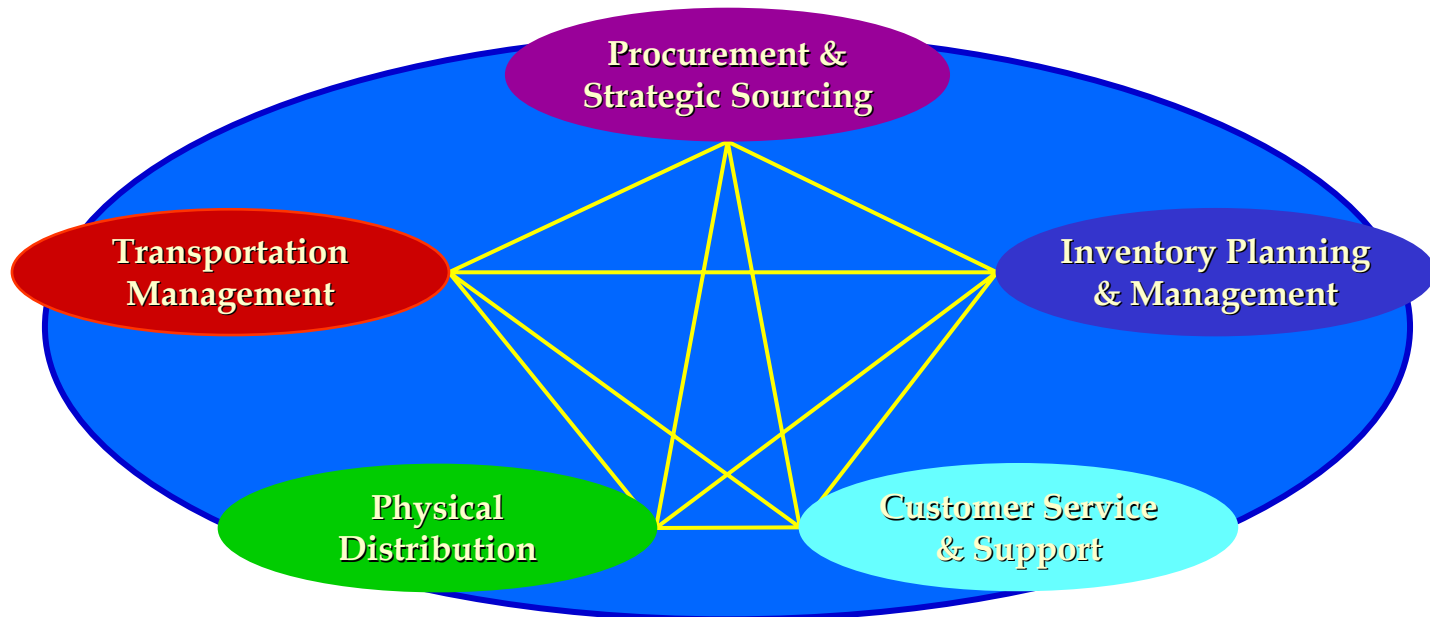
...or were they prepared??

Preparation is the key...

- **Business & Supply Chain Scenario Planning & Development**
- **Prepared Responses let you react only when you have to**
- **Basic Supply Chain capabilities and enablement**
- **Visibility & Event Management..., the key to staying ahead**

For our purposes, 'Logistics' & 'Supply Chain' consists of five integrated sets of activities...

*Integrated Logistics & Supply
Chain Management Activities*



Demand Planning & Inventory Management Enablers

Infrastructure

- Accurate Inventory Control Program
- Rationalized SKU Base
- Product Grouping & Categorization

People

- Demand Planning Function
- Cross Functional S&OP Structure
 - Sales/Marketing
 - Production
 - Demand Planning
 - Logistics
 - Procurement

Process

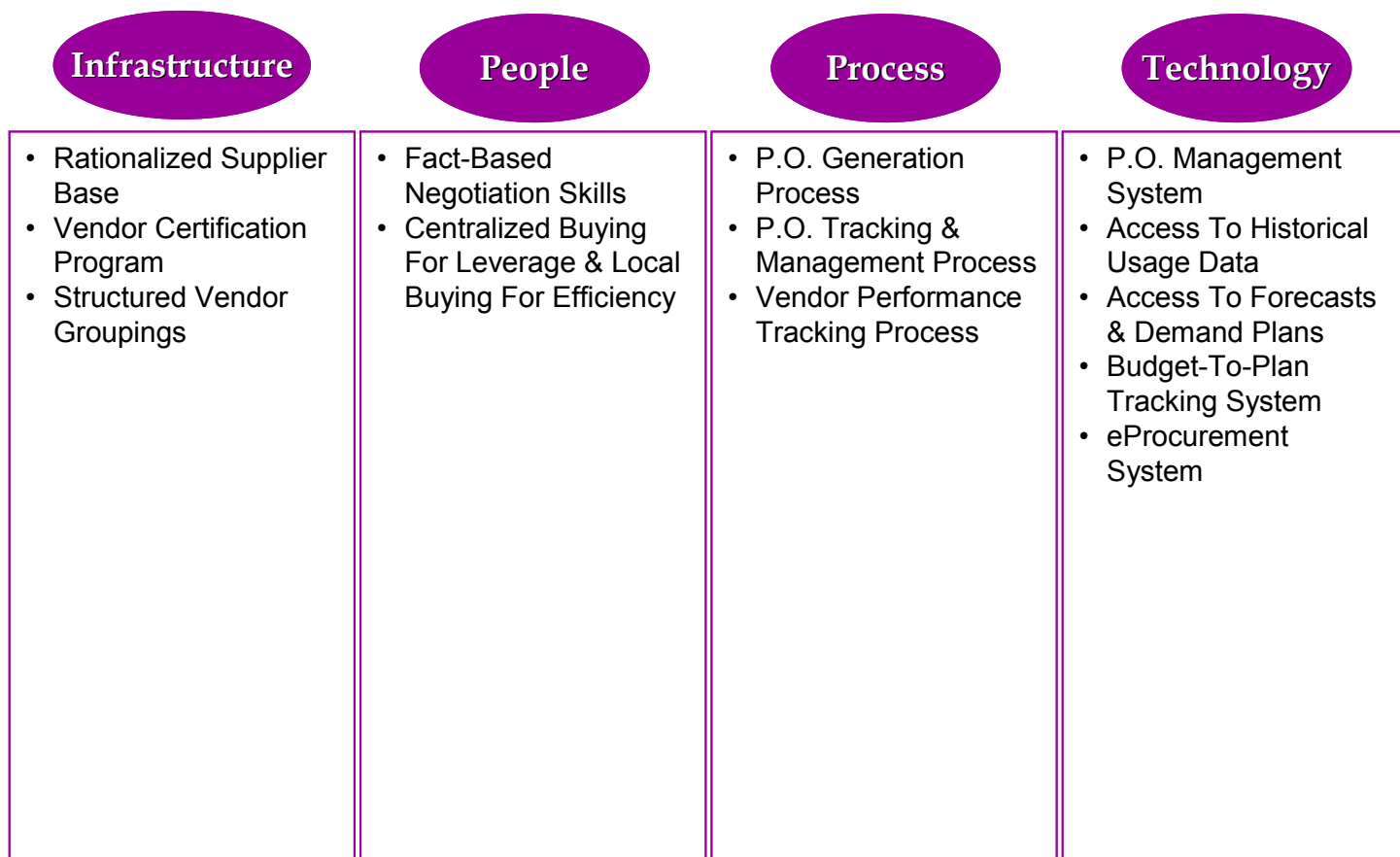
- Sales & Operations Planning Process
- Demand Planning Processes
- Forecasting Process
- Inventory Deployment Process
- Product Life Cycle Planning Processes
- Obsolete & Slow Moving Inventory Disposition Processes
- Replenishment Processes

Technology

- Demand Planning Tool
- Forecasting Tool
- EOQ System For Supply Items & Raw Materials
- Total Cost Model
- Interfaces With Order Management, Production Planning, & Logistics Systems

**Inventory Planning
& Management**

Strategic Sourcing & Procurement Enablers



**Procurement &
Strategic Sourcing**

Transportation Management Enablers;

Infrastructure

- Rationalized Carrier Base
- Core Carrier Program
- Rail Cycle Management Program
- Simplified Lane Structure & Tariffs
- Contract Bundling

Organization

- Centralized Planning/Localized Execution
- Load Control Center Coordinators
- Site Operations Coordination
- Carrier Procurement & Relationship Management Focus

Business Processes

- Delivery Management Process
- Routing & Scheduling
- Load Tendering
- Trailer Pool & Yard Management
- Import/Export Processes
- Tracking, Tracing, & Proactive Exception Management
- Private Fleet Management & Maintenance

Technology

- Shipment Planning & Optimization Tool
- EDI Carrier Communication & Load Tendering Tools

Transportation Management

Physical Distribution Network Enablers

Infrastructure

- Consolidated storage network
- Leveraged third party contracts/relationships
- Warehouse/Tank/Terminal location strategy
- Optimal, flexible facility configuration
- ABC slotting methodology
- Appropriate application of material handling methods

People

- Centralized network management focus
- Local site execution
- Incentive driven labor force
- Third party relationship management

Process

- Standardized base warehousing processes;
 - Pre-Receiving
 - Receiving
 - Putaway
 - Picking/Staging
 - Shipping
- Positive confirmation location control
- VMI & consignment processes
- Off-site inventory control processes
- Auditor endorsed cycle counting program
- Shrink, damage, obsolete disposition
- Inventory slotting/deployment

Technology

- Network modeling tool
- Locator system
- Warehouse Management System (WMS)
- Tank monitoring systems
- Bar coding
- Radio frequency communications
- Lot & batch tracking
- Pick ticket & BOL generation
- Workload planning

**Physical
Distribution**

Customer Service & Support Enablers

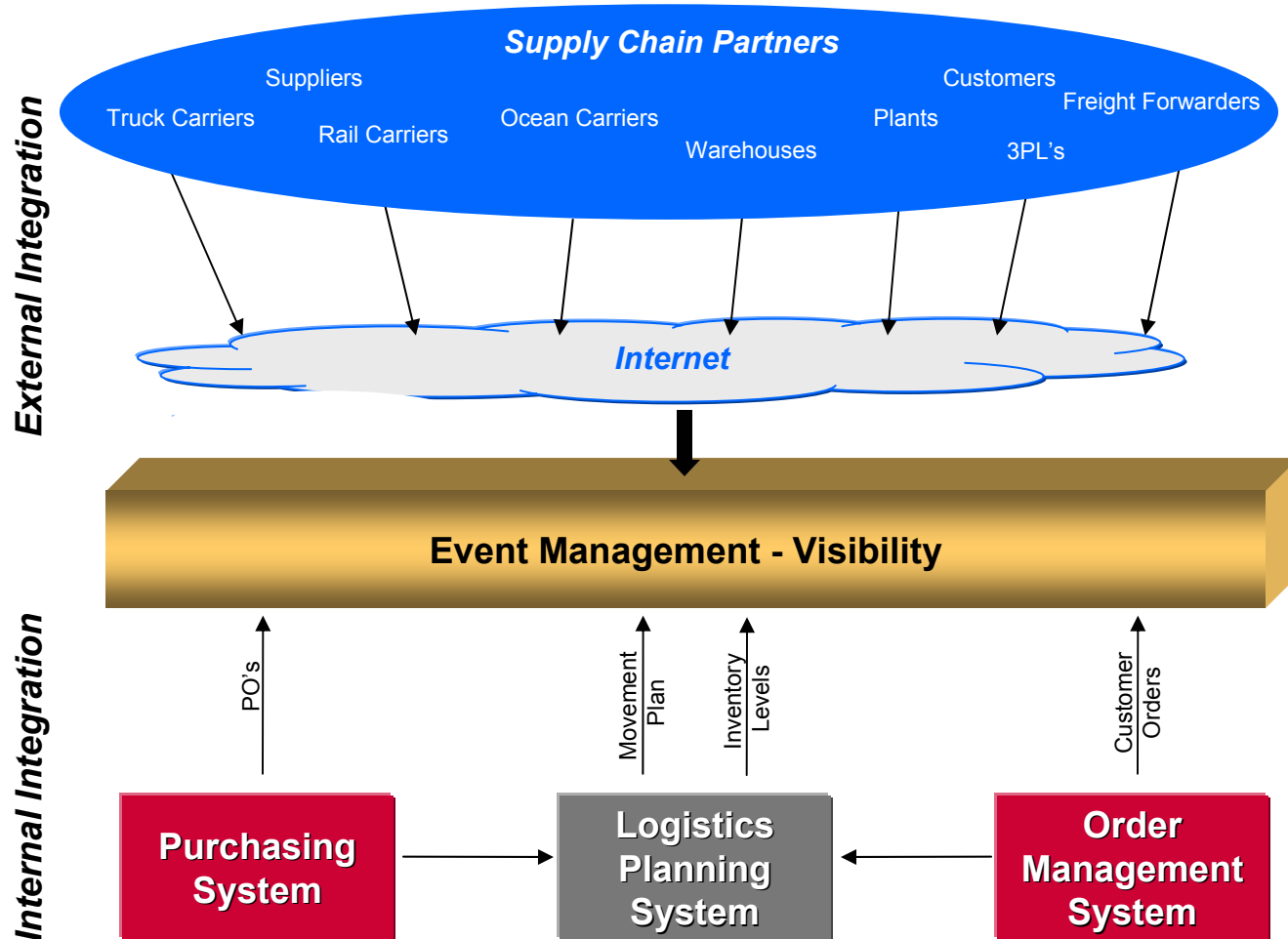
Infrastructure	People	Process	Technology
<ul style="list-style-type: none">• Segmentation of responsibilities to operations• Open communication structure• Centralized call center structure	<ul style="list-style-type: none">• Segment-driven customer support teams• Focused, on-going training programs• Cross-trained teams	<ul style="list-style-type: none">• Real-time order status processes• Available to promise process• Defined order-to-cash process• Inquiry management process• Proactive exception management processes	<ul style="list-style-type: none">• Call management / telephony systems• Common order management platform• Inquiry management system• Interfaces to inventory, credit, accounting, logistics, & sales

**Customer Service
& Support**

Score Your Logistics & Supply Chain Performance

		Date Completed	Benefit Target	Benefit Achieved
<i>Customer Service & Support</i> <ul style="list-style-type: none"> • Call Center Consolidation • Customer Support Teams • Customer Segmentation • Tiered Service Offerings 				
<i>Inventory Planning & Management</i> <ul style="list-style-type: none"> • Sales & Op's Planning – S&OP • Product/SKU Rationalization • Forecasting • Inventory Segmentation • Safety Stock Consolidation • Statistical Inventory Analysis • One-Time Inventory Reductions 				
<i>Procurement & Strategic Sourcing</i> <ul style="list-style-type: none"> • Vendor Consolidation • Leveraged Buying • Process Simplification • Indirect Spend Leverage 				
<i>Warehousing & DC Operations</i> <ul style="list-style-type: none"> • Facility Consolidation • Facility Layout Improvements • Facility Automation • ABC Product Slotting • Efficient Flow/Pick Path • Outsourcing 				
<i>Transportation Management</i> <ul style="list-style-type: none"> • Core Carrier Program • Pre-Paid To Collect Conversion • Mode Shifts • Shipment Planning/Optimization • Private Fleet Conversion • Small Package Efficiency • ASN Program 				

Pulling all of your supply chain capabilities together allows a company to create supply chain visibility and better handle supply chain events...



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